

FARM MACHINERY AND EQUIPMENT
1979 COST ESTIMATES

Revised and Adopted for Ohio

by

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INTRODUCTION^{1/}

The following information is included as an aid in estimating farm machinery costs for 1979. The costs are determined by formula and were updated January 1979. They represent an average cost for a specific piece of machinery. These machinery costs are intended to be average estimates for the agricultural industry.

There are two types of costs associated with owning and operating a machine. Fixed costs which will incur whether or not the machine is used include depreciation, interest, insurance, housing and taxes. Operating costs which occur only when the machine is used include fuel, lubrication, repairs and labor.

Fixed costs: Each machine is depreciated for 10 years with a salvage value of 10 percent and investment credit taken at the full 10 percent rate. It is assumed that a piece of equipment once purchased new will be used commercially for 10 years even though it may be owned by several people.

Interest and insurance is calculated by multiplying the average investment, new cost plus salvage value divided by 2, times the rates of interest and insurance. Interest and insurance rates are assumed to be 11 percent and .75 percent, respectively. Housing cost is assumed to be 33 cents per square foot of shelter space needed per year. There are no property taxes on farm machinery in Ohio.

Formulas used to compute fixed machinery costs:

Depreciation per year = $\frac{\text{purchase price} - \text{investment credit} - \text{salvage value}}{(\text{years you will use machine})}$

Interest per year = $\frac{\text{purchase price} + \text{salvage value}}{2} \times \text{interest rate}$

Insurance per year = $\frac{\text{purchase price} + \text{salvage value}}{2} \times \text{rate}$

Housing per year = price per square foot x square feet shelter space required

Taxes per year = 0 (no taxes on personal property in Minnesota)

Operating costs: Fuel cost is calculated by multiplying the fuel consumption by the price of fuel. The price of fuel is assumed to be 51 cents per gallon for diesel. All power units, tractors, combines, trucks, etc., are assumed to be diesel powered. An estimate of gasoline consumption might be made by multiplying the diesel fuel consumption by a factor of 1.36. Lubrication cost is assumed to be 10 percent of fuel cost.

The formulas for estimating the repair and maintenance costs necessary to maintain a machine in an operable condition are provided in the 1976 Agricultural Engineer's Yearbook and illustrated in the MACHINE User's Guide. The formulas can be used to estimate total accumulated repair costs according to the accumulated hours of use. For a new machine, the estimate is merely one of estimating repair costs for

^{1/} This information was developed by F. J. Benson, Agricultural Economist at the University of Minnesota.

the number of hours of intended use of the machine. The estimate is the total repair cost. This cost is divided by the total hours of use in order to provide an average repair cost per hour. An assumption is made as to the annual use of each machine. The amount of annual use is an estimate of annual hours of use that a commercial farmer would use that particular machine in one year.

Labor is assumed to an hourly wage rate which includes benefits of \$4.50 per hour for unskilled labor and \$6.50 per hour for skilled labor. Labor for an operation such as plowing and discing is calculated by using the rate on the implement instead of the tractor. Plows and discs using the same tractor have different rates of work accomplishment. Less labor is charged on a discing operation which covers more acres per hour than a plowing operation.

Tables 1 and 2 provide estimates for fixed and variable costs on an annual and hourly basis for tractors and combines of varying sizes.

Table 3 provides estimates on shelter space, repair and maintenance costs, and fuel consumption.

Tables 4 and 5 provide estimates on new costs, annual usage, rate of usage and field performance for selected items of machinery.

Table 6 provides estimates on shelter space, repair costs and labor requirements for selected items of machinery.

Tables 7 and 8 provide estimates of total function costs for the specific pieces of equipment on a per hour and per acre basis. Total function costs are estimates of all the costs associated with doing a specific function such as plowing, discing, spraying, etc. Total function costs include overhead and operating costs of the tractor (if used) and the piece of equipment, plus the cost of labor to operate the equipment.

Table 9 provides estimates of fuel consumption per acre based on .06 gallons of diesel fuel per horsepower hour. Fuel price is included at 51 cents per gallon.

Tables 10 and 11 include estimates of suggested custom rates on a per hour and per acre basis. These suggested custom rates include all costs plus a 20 percent addition to cover risks and provide a reasonable profit. Some pieces of equipment are assumed to be used over more acres when used by a custom operator so that the annual overhead may be spread over more hours or acres than would be the case for the average farm operator. This indicates somewhat lower costs because of reduced per unit overhead as compared to the commercial operator. Table 11 includes estimates of cash operating costs, total function costs and suggested custom rates for each piece of equipment. The cash operating costs (out of pocket costs) include fuel, oil, repairs and maintenance for each set of equipment. Labor is not included in the cash operating costs but is included in the total function costs and suggested custom rates. The labor wage rate for unskilled labor is \$4.50 per hour and a charge of \$6.50 per hour is used for skilled labor (see table 6).

These cost estimates are not intended to be indicative of everyone's cost but are intended to be used as a guide in planning the cropping operation. Each individual has unique costs because of his buying power, repair program, average annual use and overall replacement program.

TABLE 1

ESTIMATED NEW COST, AVERAGE INVESTMENT, ANNUAL HOURS USE, ANNUAL FIXED COST,
AND RESULTING FIXED COST PER HOUR FOR SPECIFIED SIZES OF TRACTORS.

TRACTOR	HP	NFW COST	AVERAGE INVESTMENT	ANNUAL HOURS USE	ANNUAL FIXED COST	FIXED COST/HR
40	HP	9590.00	5274.50	500.00	1417.31	2.83
60	HP	13490.00	7419.50	500.00	1985.31	3.97
75	HP	16940.00	9317.00	500.00	2487.90	4.98
100	HP	24910.00	13700.50	550.00	3644.52	6.63
120	HP	28050.00	15427.50	550.00	4099.63	7.45
140	HP	30570.00	16813.50	550.00	4487.19	8.16
160	HP	34520.00	18986.00	600.00	5058.45	8.43
180	HP	38900.00	21395.00	600.00	5691.91	9.49
200	HP 4WD	45450.00	24997.50	500.00	6655.71	13.31
225	HP 4WD	49040.00	26972.00	500.00	7174.91	14.35
250	HP 4WD	55850.00	30717.50	500.00	8159.81	16.32
275	HP 4WD	58080.00	31944.00	500.00	8482.32	16.96
300	HP 4WD	64240.00	35359.50	500.00	9380.44	18.76
320	HP 4WD	70850.00	38967.50	500.00	10329.18	20.66
SML	COMBINE*	34130.00	18771.50	300.00	5035.05	16.78
MED	COMBINE*	42850.00	23567.50	300.00	6329.18	21.10
LRG	COMBINE*	50300.00	27665.00	300.00	7439.64	24.80

TABLE 2

ESTIMATED HOURLY AND ANNUAL COSTS CALCULATED FOR
EXPECTED HOURS OF USE FOR SPECIFIED SIZES OF TRACTORS.

TRACTOR	HP	VARIABLE COST/HR	ANNUAL VARIABLE COST	ANNUAL TOTAL COST	TOTAL COST/ HOUR
40	HP	1.97	982.72	2400.03	4.80
60	HP	2.89	1445.19	3430.50	6.86
75	HP	3.62	1808.99	4296.88	8.59
100	HP	5.05	2778.83	6423.35	11.68
120	HP	5.94	3266.01	7365.64	13.39
140	HP	6.78	3730.10	8217.29	14.94
160	HP	7.83	4695.92	9754.37	16.26
180	HP	8.81	5285.67	10977.58	18.70
200	HP 4WD	9.18	4588.41	11244.12	22.49
225	HP 4WD	10.21	5105.72	12280.63	24.56
250	HP 4WD	11.42	5709.63	13869.43	27.74
275	HP 4WD	12.38	6190.35	14672.67	29.35
300	HP 4WD	13.56	6778.13	16158.57	32.32
320	HP 4WD	14.58	7291.16	17620.34	35.24
SML	COMBINE*	15.52	4656.80	9691.85	32.31
MED	COMBINE*	18.97	5689.56	12018.74	40.06
LRG	COMBINE*	22.22	6667.40	14107.04	47.02

TABLE 3

ESTIMATED SHELTER SPACE REQUIREMENT, REPAIR AND MAINTENANCE COST/HR,
AND FUEL CONSUMPTION FOR SPECIFIED SIZES OF TRACTORS.

TRACTOR	HP	SHELTER SPACE (SQ. FT)	REPAIR + MAINT. COST/HR	FUEL CONS./ HOUR
40	HP	92.00	.62	2.400
60	HP	104.00	.87	3.600
75	HP	115.00	1.09	4.500
100	HP	127.00	1.69	6.000
120	HP	130.00	1.90	7.200
140	HP	200.00	2.07	8.400
160	HP	200.00	2.44	9.600
180	HP	200.00	2.75	10.800
200	HP 4WD	250.00	2.44	12.000
225	HP 4WD	250.00	2.64	13.500
250	HP 4WD	250.00	3.00	15.000
275	HP 4WD	250.00	3.12	16.500
300	HP 4WD	250.00	3.46	18.000
320	HP 4WD	250.00	3.81	19.200
SML	COMBINE*	300.00	12.16	6.000
MED	COMBINE*	400.00	15.26	6.600
LRG	COMBINE*	500.00	17.92	7.686

* Combine without header.

TABLE 4

ESTIMATED PRICES, ANNUAL USE, AND MACHINE TIME FOR SELECTED ITEMS OF MACHINERY

MACHINE	NEW COST	AVERAGE INVESTMENT	ANNUAL HOURS USE	ANNUAL ACRES USE	ESTIMATED ACRES/HR
PLOW 2-16	930.00	511.50	120.00	139.29	1.16
PLOW 3-16	2150.00	1182.50	120.00	209.45	1.75
PLOW 4-16	3530.00	1941.50	120.00	279.10	2.33
PLOW 5-16	5190.00	2854.50	120.00	348.74	2.91
PLOW 6-16	5730.00	3151.50	130.00	453.82	3.49
PLOW 7-16	7290.00	4009.50	130.00	529.27	4.07
PLOW 8-16	8550.00	4702.50	130.00	604.71	4.65
PLOW 9-18	12940.00	7117.00	150.00	883.64	5.89
PLOW 10-18	13870.00	7628.50	150.00	981.82	6.55
PLOW 12-18	15500.00	8525.00	150.00	1178.18	7.85
CHISEL PLOW 15 FT	2580.00	1419.00	100.00	654.55	6.55
CHISEL PLOW 17 FT	3600.00	1980.00	100.00	741.82	7.42
CHISEL PLOW 20 FT	5740.00	3157.00	100.00	872.73	8.73
CHISEL PLOW WING 24	5790.00	3184.50	100.00	1047.27	10.47
CHISEL PLOW WING 29	7300.00	4015.00	100.00	1265.45	12.65
CHISEL PLOW WING 35	8490.00	4669.50	100.00	1527.27	15.27
FIELD CULTIVATOR 18	2510.00	1380.50	120.00	1047.27	8.73
FIELD CULTIVATOR 28	5770.00	3173.50	120.00	1629.09	13.58
FIELD CULTIVATOR 37	7240.00	3982.00	120.00	2152.73	17.94
DISK 10 FT	2810.00	1545.50	100.00	484.85	4.85
DISK 16 FT	4480.00	2464.00	100.00	775.76	7.76
DISK 17 FT	5800.00	3190.00	100.00	824.24	8.24
DISK 20 FT	6180.00	3399.00	100.00	969.70	9.70
DISK 21 FT	6620.00	3641.00	100.00	1018.18	10.18
DISK 24 FT	10230.00	5626.50	100.00	1163.64	11.64
DISK 28 FT	11340.00	6237.00	100.00	1357.58	13.58

TABLE 4, CONTINUED

ESTIMATED PRICES, ANNUAL USE, AND MACHINE TIME FOR SELECTED ITEMS OF MACHINERY

MACHINE	NEW COST	AVERAGE INVESTMENT	ANNUAL HOURS USE	ANNUAL ACRES USE	ESTIMATED ACRES/HR
DISK 32 FT	11820.00	6501.00	100.00	1551.52	15.52
DISK OFFSET 14 FT	5010.00	2755.50	100.00	610.91	6.11
DISK OFFSET 16 FT	6030.00	3316.50	100.00	698.18	6.98
DISK OFFSET 18 FT	6580.00	3619.00	100.00	785.45	7.85
DISK-WING OFFSET 21	9890.00	5439.50	100.00	916.36	9.16
DISK-WING OFFSET 23	11290.00	6209.50	100.00	1003.64	10.04
LANDPLANE 45-12FT	4990.00	2744.50	75.00	480.00	6.40
LANDPLANE 54-12FT	8900.00	4895.00	75.00	480.00	6.40
LANDPLANE 54-15FT	9200.00	5060.00	75.00	600.00	8.00
LANDPLANE 75-14FT	9780.00	5379.00	75.00	560.00	7.47
SPRINGTOOTH DRAG 30	2940.00	1617.00	30.00	480.00	16.00
SPRINGTOOTH DRAG 48	5300.00	2915.00	35.00	1058.91	30.25
FERTILIZER SPRDR 40	3360.00	1848.00	30.00	1163.64	38.79
CORN PLANTER 4-38	5170.00	2843.50	60.00	290.03	4.83
CORN PLANTER 6-38	7810.00	4295.50	60.00	435.27	7.25
CORN PLANTER 6-30	7230.00	3976.50	60.00	343.64	5.73
CORN PLANTER 8-30	9780.00	5379.00	60.00	458.18	7.64
POTATO PLANTER 4 ROW	12000.00	6600.00	65.00	248.97	3.83
BEET PLANTER 12ROW	11490.00	6319.50	60.00	280.00	4.67
GRAIN DRILL PW 14 FT	7940.00	4367.00	80.00	445.96	5.57
GRAIN DRILL PW 16 FT	9400.00	5170.00	80.00	509.67	6.37
GRAIN DRILL PW 20 FT	12430.00	6836.50	80.00	637.09	7.96
GRAIN DRILL PW 24 FT	13820.00	7601.00	80.00	764.51	9.56
GRAIN DRILL PW 28 FT	16100.00	8855.00	80.00	891.93	11.15
CULTIVATOR 4-38	1960.00	1078.00	100.00	491.05	4.91
CULTIVATOR 6-38	2540.00	1397.00	100.00	736.97	7.37

TABLE 4, CONTINUED

ESTIMATED PRICES, ANNUAL USE, AND MACHINE TIME FOR SELECTED ITEMS OF MACHINERY

MACHINE	NEW COST	AVERAGE INVESTMENT	ANNUAL HOURS USE	ANNUAL ACRES USE	ESTIMATED ACRES/HR
CULTIVATOR 6-30	2120.00	1166.00	100.00	581.82	5.82
CULTIVATOR 8-30	2750.00	1512.50	100.00	775.76	7.76
ROTARY HOE 16	2180.00	1199.00	40.00	434.42	10.86
POTATO CULT. 4 ROW	2500.00	1375.00	130.00	796.70	6.13
BEET CULT. 12 ROW	4600.00	2530.00	60.00	360.00	6.00
BEET THINNER 6 ROW	11210.00	6165.50	100.00	210.00	2.10
BEET THINNER 12 ROW	21510.00	11830.50	100.00	420.00	4.20
SPRAYER 30FT	1940.00	1067.00	80.00	1134.55	14.18
SPRAYER 50FT	3470.00	1908.50	100.00	2363.64	23.64
SPRAYER HI PRES 50FT	10000.00	5500.00	100.00	2363.64	23.64
ANHYDROUS APPLICATOR	3580.00	1969.00	40.00	356.36	8.91
SHREDDER 12FT	3720.00	2046.00	100.00	436.36	4.36
SWATHER-COND. 12FT	10950.00	6022.50	80.00	436.36	5.45
SWATHER-COND. 15FT	11060.00	6083.00	80.00	545.45	6.82
SWATHER 12 FT	10430.00	5736.50	80.00	465.45	5.82
SWATHER 15 FT	10560.00	5808.00	80.00	581.82	7.27
SWATHER 18 FT	11790.00	6484.50	80.00	698.18	8.73
SWATHER 20 FT	10350.00	5692.50	80.00	775.76	9.70
1 TON STACKER	8090.00	4449.50	200.00	829.09	4.15
3 TON STACKER	12660.00	6963.00	220.00	1064.00	4.84
6 TON STACKER	17410.00	9575.50	280.00	1547.64	5.53
BALER PTO TWINE	5880.00	3234.00	200.00	756.36	3.78
ROUND BALER	7510.00	4130.50	200.00	927.27	4.64
ROTARY MOWER	1420.00	781.00	100.00	272.73	2.73
RAKE (HYD)	1710.00	940.50	200.00	698.18	3.49
FORAGE HARV. 1 ROW	7490.00	4119.50	100.00	94.55	.95

TABLE 4. CONTINUED

ESTIMATED PRICES, ANNUAL USE, AND MACHINE TIME FOR SELECTED ITEMS OF MACHINERY

MACHINE	NEW COST	AVERAGE INVESTMENT	ANNUAL HOURS USE	ANNUAL ACRES USE	ESTIMATED ACRES/HR
FORAGE HARV. 2 ROW	9070.00	4988.50	100.00	165.45	1.65
FOR HARV 2ROW SP	45440.00	24992.00	150.00	305.45	2.04
FOR HAR 3ROW SP	47020.00	25861.00	150.00	458.18	3.05
FORAGE BLOWER LG	1830.00	1006.50	50.00		
CORN PICKER 2-38	9300.00	5115.00	150.00	223.36	1.49
PICKER-SHELLER 2-ROW	9700.00	5335.00	150.00	223.36	1.49
COMBINE SM GRAIN SML	2880.00	1584.00	200.00	819.39	4.10
COMBINE SM GRAIN MED	3470.00	1908.50	200.00	945.45	4.73
COMBINE SM GRAIN LGE	4180.00	2299.00	200.00	1260.61	6.30
COMBINE SOYBEANS SML	4010.00	2205.50	200.00	716.97	3.58
COMBINE SOYBEANS MED	4700.00	2585.00	200.00	827.27	4.14
COMBINE SOYBEANS LGE	5540.00	3047.00	200.00	992.73	4.96
COMBINE CORN 2-38 SM	3850.00	2117.50	200.00	297.82	1.49
COMBINE CORN 3-38 SM	6380.00	3509.00	200.00	449.09	2.25
COMBINE CORN 4-38 MD	8510.00	4680.50	200.00	598.47	2.99
COMBINE CORN 4-30 MD	8220.00	4521.00	200.00	520.00	2.60
COMBINE CORN 6-30 LG	11150.00	6132.50	200.00	780.00	3.90
COMBINE CORN 8-30 LG	14460.00	7953.00	200.00	945.45	4.73
POTATO HARVSTR. 2ROW	22000.00	12100.00	120.00	298.76	2.49
BET LIFTER 3 ROW	13990.00	7694.50	80.00	208.00	2.60
BET LIFTER 4 ROW	17030.00	9366.50	80.00	277.21	3.47
BET LIFTER 6 ROW	25390.00	13964.50	80.00	416.00	5.20
BET TOPPER 3 ROW	6220.00	3421.00	80.00	256.00	3.20
BET TOPPER 4 ROW	8040.00	4422.00	80.00	341.18	4.26
BET TOPPER 6 ROW	9310.00	5120.50	80.00	512.00	6.40
BET WAGON 8TON	5350.00	2942.50	80.00		
LIGHT TRUCK	8900.00	4895.00	270.00		
MEDIUM TRUCK	14900.00	8195.00	270.00		
HEAVY TRUCK	23500.00	12925.00	270.00		
WAGON	1920.00	1056.00	250.00		
FORAGE WAGON 14FT	4550.00	2502.50	130.00		

TABLE 5
ESTIMATED FIELD PERFORMANCE FOR SELECTED ITEMS OF MACHINERY

MACHINE	SPEED (MPH)	FIELD EFFICIENCY	WIDTH (FEET)	ACRES/ HOUR	HOURS/ ACRE
PLOW 2-16	4.50	.80	2.66	1.16	.862
PLOW 3-16	4.50	.80	4.00	1.75	.573
PLOW 4-16	4.50	.80	5.33	2.33	.430
PLOW 5-16	4.50	.80	6.66	2.91	.344
PLOW 6-16	4.50	.80	8.00	3.49	.286
PLOW 7-16	4.50	.80	9.33	4.07	.246
PLOW 8-16	4.50	.80	10.66	4.65	.215
PLOW 9-18	4.50	.80	13.50	5.89	.170
PLOW 10-18	4.50	.80	15.00	6.55	.153
PLOW 12-18	4.50	.80	18.00	7.85	.127
CHISEL PLOW 15 FT	4.50	.80	15.00	6.55	.153
CHISEL PLOW 17 FT	4.50	.80	17.00	7.42	.135
CHISEL PLOW 20 FT	4.50	.80	20.00	8.73	.115
CHISEL PLOW WING 24	4.50	.80	24.00	10.47	.095
CHISEL PLOW WING 29	4.50	.80	29.00	12.65	.079
CHISEL PLOW WING 35	4.50	.80	35.00	15.27	.065
FIELD CULTIVATOR 18	5.00	.80	18.00	8.73	.115
FIELD CULTIVATOR 28	5.00	.80	28.00	13.58	.074
FIELD CULTIVATOR 37	5.00	.80	37.00	17.94	.056
DISK 10 FT	5.00	.80	10.00	4.85	.206
DISK 16 FT	5.00	.80	16.00	7.76	.129
DISK 17 FT	5.00	.80	17.00	8.24	.121
DISK 20 FT	5.00	.80	20.00	9.70	.103
DISK 21 FT	5.00	.80	21.00	10.18	.098
DISK 24 FT	5.00	.80	24.00	11.64	.086
DISK 28 FT	5.00	.80	28.00	13.58	.074

TABLE 5. CONTINUED

ESTIMATED FIELD PERFORMANCE FOR SELECTED ITEMS OF MACHINERY

MACHINE	SPEED (MPH)	FIELD EFFICIENCY	WIDTH (FEET)	ACRES/ HOUR	HOURS/ ACRE
DISK 32 FT	5.00	.80	32.00	15.52	.064
DISK OFFSET 14 FT	4.50	.80	14.00	6.11	.164
DISK OFFSET 16 FT	4.50	.80	16.00	6.98	.143
DISK OFFSET 18 FT	4.50	.80	18.00	7.85	.127
DISK-WING OFFSET 21	4.50	.80	21.00	9.16	.109
DISK-WING OFFSET 23	4.50	.80	23.00	10.04	.100
LANDPLANE 45-12FT	5.50	.80	12.00	6.40	.156
LANDPLANE 54-12FT	5.50	.80	12.00	6.40	.156
LANDPLANE 54-15FT	5.50	.80	15.00	8.00	.125
LANDPLANE 75-14FT	5.50	.80	14.00	7.47	.134
SPRINGTOOTH DRAG 30	5.50	.80	30.00	16.00	.063
SPRINGTOOTH DRAG 48	6.50	.80	48.00	30.25	.033
FERTILIZER SPRDR 40	10.00	.80	40.00	38.79	.026
CORN PLANTER 4-38	4.50	.70	12.66	4.83	.207
CORN PLANTER 6-38	4.50	.70	19.00	7.25	.138
CORN PLANTER 6-30	4.50	.70	15.00	5.73	.175
CORN PLANTER 8-30	4.50	.70	20.00	7.64	.131
POTATO PLANTER 4 ROW	5.00	.50	12.64	3.83	.261
BEET PLANTER 12ROW	2.50	.70	22.00	4.67	.214
GRAIN DRILL PW 14 FT	4.50	.73	14.00	5.57	.179
GRAIN DRILL PW 16 FT	4.50	.73	16.00	6.37	.157
GRAIN DRILL PW 20 FT	4.50	.73	20.00	7.96	.126
GRAIN DRILL PW 24 FT	4.50	.73	24.00	9.56	.105
GRAIN DRILL PW 28 FT	4.50	.73	28.00	11.15	.090
CULTIVATOR 4-38	4.00	.80	12.66	4.91	.204
CULTIVATOR 6-38	4.00	.80	19.00	7.37	.136

TABLE 5, CONTINUED

ESTIMATED FIELD PERFORMANCE FOR SELECTED ITEMS OF MACHINERY

MACHINE	SPEED (MPH)	FIELD EFFICIENCY	WIDTH (FEET)	ACRES/ HOUR	HOURS/ ACRE
CULTIVATOR 6-30	4.00	.80	15.00	5.82	.172
CULTIVATOR 8-30	4.00	.80	20.00	7.76	.129
ROTARY HOE 16	7.00	.80	16.00	10.86	.092
POTATO CULT. 4 ROW	5.00	.80	12.64	6.13	.163
BEET CULT. 12 ROW	3.00	.75	22.00	6.00	.167
BEET THINNER 6 ROW	2.25	.70	11.00	2.10	.476
BEET THINNER 12 ROW	2.25	.70	22.00	4.20	.238
SPRAYFR 30FT	6.50	.60	30.00	14.18	.071
SPRAYER 50FT	6.50	.60	50.00	23.64	.042
SPRAYER HI PRES 50FT	6.50	.60	50.00	23.64	.042
ANHYDROUS APPLICATOR	5.00	.70	21.00	8.91	.112
SHREDDER 12FT	4.00	.75	12.00	4.36	.229
SWATHER-COND. 12FT	5.00	.75	12.00	5.45	.183
SWATHER-COND. 15FT	5.00	.75	15.00	6.82	.147
SWATHER 12 FT	5.00	.80	12.00	5.82	.172
SWATHER 15 FT	5.00	.80	15.00	7.27	.138
SWATHER 18 FT	5.00	.80	18.00	8.73	.115
SWATHER 20 FT	5.00	.80	20.00	9.70	.103
1 TON STACKER	4.75	.60	12.00	4.15	.241
3 TON STACKER	4.75	.70	12.00	4.84	.207
6 TON STACKER	4.75	.80	12.00	5.53	.181
BALER PTO TWINE	4.00	.65	12.00	3.78	.264
ROUND BALER	4.25	.75	12.00	4.64	.216
ROTARY MOWER	5.00	.75	6.00	2.73	.367
RAKE (HYD)	4.00	.80	9.00	3.49	.286
FORAGE HARV. 1 ROW	4.00	.65	3.00	.95	1.058

TABLE 5. CONTINUED
ESTIMATED FIELD PERFORMANCE FOR SELECTED ITEMS OF MACHINERY

MACHINE	SPEED (MPH)	FIELD EFFICIENCY	WIDTH (FEET)	ACRES/ HOUR	HOURS/ ACRE
FORAGE HARV. 2 ROW	3.50	.65	6.00	1.65	.604
FOR HARV 2ROW SP	4.00	.70	6.00	2.04	.491
FOR HAR 3ROW SP	4.00	.70	9.00	3.05	.327
FORAGE BLOWER LG					
CORN PICKER 2-38	3.00	.65	6.30	1.49	.672
PICKER-SHELLER 2-ROW	3.00	.65	6.30	1.49	.672
COMBINE SM GRAIN SML	4.00	.65	13.00	4.10	.244
COMBINE SM GRAIN MED	4.00	.65	15.00	4.73	.212
COMBINE SM GRAIN LGE	4.00	.65	20.00	6.30	.159
COMBINE SOYBEANS SML	3.50	.65	13.00	3.58	.279
COMBINE SOYBEANS MED	3.50	.65	15.00	4.14	.242
COMBINE SOYBEANS LGE	3.50	.65	18.00	4.96	.201
COMBINE CORN 2-38 SM	3.00	.65	6.30	1.49	.672
COMBINE CORN 3-38 SM	3.00	.65	9.50	2.25	.445
COMBINE CORN 4-38 MD	3.00	.65	12.66	2.99	.334
COMBINE CORN 4-30 MD	3.30	.65	10.00	2.60	.385
COMBINE CORN 6-30 LG	3.30	.65	15.00	3.90	.256
COMBINE CORN 8-30 LG	3.00	.65	20.00	4.73	.212
POTATO HARVSTR. 2ROW	5.00	.65	6.32	2.49	.402
BEET LIFTER 3 ROW	6.00	.65	5.50	2.60	.385
BEET LIFTER 4 ROW	6.00	.65	7.33	3.47	.289
BEET LIFTER 6 ROW	6.00	.65	11.00	5.20	.192
BEET TOPPER 3 ROW	6.00	.80	5.50	3.20	.313
BEET TOPPER 4 ROW	6.00	.80	7.33	4.26	.234
BEET TOPPER 6 ROW	6.00	.80	11.00	6.40	.156
BEET WAGON 8TON	6.00	.65	7.33	3.47	.289
LIGHT TRUCK	5.00	.50	5.00	1.52	.660
MEDIUM TRUCK	5.00	.50	5.00	1.52	.660
HEAVY TRUCK	5.00	.50	5.00	1.52	.660
WAGON	4.00	.65	12.00	3.78	.264
FORAGE WAGON 14FT	3.50	.65	6.00	1.65	.604

TABLE 6

ESTIMATED SHELTER SPACE REQUIREMENTS, REPAIR AND MAINTENANCE COST/HR., LABOR REQUIREMENTS BY CATEGORY, AND TOTAL LABOR COST FOR SPECIFIED ITEMS OF MACHINERY (COST OF TRACTOR OPERATOR IS CHARGED TO THE MACHINE BEING OPERATED).

MACHINE	SHELTER SPACE (SQ. FT.)	REPAIR + MAINT. COST/HR	LABOR REQUIREMENTS		MAN HRS AS PCT. MACH. HOURS	LABOR COST/ MACHINE HOUR
			SKILLED AT \$6.50	UNSKILLED AT \$4.50		
PLOW 2-16	29.00	.36	0	1.	102.	4.59
PLOW 3-16	52.00	.83	0	1.	102.	4.59
PLOW 4-16	75.00	1.36	0	1.	102.	4.59
PLOW 5-16	104.00	2.00	0	1.	102.	4.59
PLOW 6-16	132.00	2.26	0	1.	102.	4.59
PLOW 7-16	141.00	2.87	0	1.	102.	4.59
PLOW 8-16	150.00	3.37	0	1.	102.	4.59
PLOW 9-18	160.00	5.32	0	1.	102.	4.59
PLOW 10-18	170.00	5.70	0	1.	102.	4.59
PLOW 12-18	210.00	6.37	0	1.	102.	4.59
CHISEL PLOW 15 FT	225.00	.94	0	1.	102.	4.59
CHISEL PLOW 17 FT	255.00	1.31	0	1.	102.	4.59
CHISEL PLOW 20 FT	300.00	2.09	0	1.	102.	4.59
CHISEL PLOW WING 24	190.00	2.11	0	1.	102.	4.59
CHISEL PLOW WING 29	200.00	2.66	0	1.	102.	4.59
CHISEL PLOW WING 35	200.00	3.09	0	1.	102.	4.59
FIELD CULTIVATOR 18	200.00	.97	0	1.	102.	4.59
FIELD CULTIVATOR 28	200.00	2.22	0	1.	102.	4.59
FIELD CULTIVATOR 37	200.00	2.78	0	1.	102.	4.59
DISK 10 FT	115.00	1.02	0	1.	102.	4.59
DISK 16 FT	185.00	1.63	0	1.	102.	4.59
DISK 17 FT	150.00	2.11	0	1.	102.	4.59
DISK 20 FT	230.00	2.25	0	1.	102.	4.59
DISK 21 FT	200.00	2.41	0	1.	102.	4.59
DISK 24 FT	200.00	3.72	0	1.	102.	4.59
DISK 28 FT	210.00	4.13	0	1.	102.	4.59

TABLE 6. CONTINUED

ESTIMATED SHELTER SPACE REQUIREMENTS, REPAIR AND MAINTENANCE
COST/HR., LABOR REQUIREMENTS BY CATEGORY, AND TOTAL LABOR COST
FOR SPECIFIED ITEMS OF MACHINERY (COST OF TRACTOR OPERATOR
IS CHARGED TO THE MACHINE BEING OPERATED).

MACHINE	SHELTER SPACE (SQ. FT.)	REPAIR + MAINT. COST/HR	LABOR REQUIREMENTS		MAN HRS AS PCT. MACH. HOURS	LABOR COST/ MACHINE HOUR
			SKILLED AT \$6.50	UNSKILLED AT \$4.50		
DISK 32 FT	210.00	4.30	0	1.	102.	4.59
DISK OFFSET 14 FT	210.00	1.82	0	1.	102.	4.59
DISK OFFSET 16 FT	240.00	2.20	0	1.	102.	4.59
DISK OFFSET 18 FT	270.00	2.40	0	1.	102.	4.59
DISK-WING OFFSET 21	220.00	3.60	0	1.	102.	4.59
DISK-WING OFFSET 23	220.00	4.11	0	1.	102.	4.59
LANDPLANE 45-12FT	540.00	.75	0	1.	108.	4.86
LANDPLANE 54-12FT	650.00	1.33	0	1.	108.	4.86
LANDPLANE 54-15FT	810.00	1.38	0	1.	108.	4.86
LANDPLANE 75-14FT	980.00	1.46	0	1.	108.	4.86
SPRINGTOOTH DRAG 30	50.00	.75	0	1.	108.	4.86
SPRINGTOOTH DRAG 48	180.00	1.41	0	1.	108.	4.86
FERTILIZER SPRDR 40	80.00	.85	0	1.	133.	5.98
CORN PLANTER 4-38	150.00	3.28	1.	0	116.	7.54
CORN PLANTER 6-38	180.00	4.95	1.	0	116.	7.54
CORN PLANTER 6-30	170.00	4.58	1.	0	116.	7.54
CORN PLANTER 8-30	200.00	6.20	1.	0	116.	7.54
POTATO PLANTER 4 ROW	54.00	7.85	1.	1.	124.	13.64
BEET PLANTER 12ROW	150.00	7.28	1.	0	124.	8.06
GRAIN DRILL PW 14 FT	130.00	5.64	1.	0	111.	7.22
GRAIN DRILL PW 16 FT	150.00	6.68	1.	0	111.	7.22
GRAIN DRILL PW 20 FT	185.00	8.84	1.	0	111.	7.22
GRAIN DRILL PW 24 FT	220.00	9.82	1.	0	111.	7.22
GRAIN DRILL PW 28 FT	260.00	11.44	1.	0	111.	7.22
CULTIVATOR 4-38	85.00	.71	0	1.	104.	4.68
CULTIVATOR 6-38	125.00	.92	0	1.	104.	4.68

TABLE 6, CONTINUED

ESTIMATED SHELTER SPACE REQUIREMENTS, REPAIR AND MAINTENANCE COST/HR, LABOR REQUIREMENTS BY CATEGORY, AND TOTAL LABOR COST FOR SPECIFIED ITEMS OF MACHINERY (COST OF TRACTOR OPERATOR IS CHARGED TO THE MACHINE BEING OPERATED).

MACHINE	SHELTER SPACE (SQ. FT.)	REPAIR + MAINT. COST/HR	LABOR REQUIREMENTS		MAN HRS AS PCT. MACH. HOURS	LABOR COST/ MACHINE HOUR
			SKILLED AT \$6.50	UNSKILLED AT \$4.50		
CULTIVATOR 6-30	100.00	.77	0	1.	104.	4.68
CULTIVATOR 8-30	140.00	1.00	0	1.	104.	4.68
ROTARY HOE 16	130.00	.60	0	1.	100.	4.50
POTATO CULT. 4 ROW	28.00	.98	0	1.	104.	4.68
BEET CULT. 12 ROW	150.00	1.44	0	1.	104.	4.68
BEET THINNER 6 ROW	150.00	4.08	1.	0	104.	6.76
BEET THINNER 12 ROW	150.00	7.83	1.	0	104.	6.76
SPRAYER 30FT	150.00	1.38	1.	0	125.	8.13
SPRAYER 50FT	200.00	2.70	1.	0	125.	8.13
SPRAYER HI PRES 50FT	200.00	7.77	1.	0	125.	8.13
ANHYDROUS APPLICATOR	145.00	2.32	0	1.	133.	5.98
SHREDDER 12FT	90.00	.85	0	1.	100.	4.50
SWATHER-COND. 12FT	205.00	2.79	0	1.	100.	4.50
SWATHER-COND. 15FT	260.00	2.81	0	1.	100.	4.50
SWATHER 12 FT	205.00	2.65	0	1.	100.	4.50
SWATHER 15 FT	260.00	2.69	0	1.	100.	4.50
SWATHER 18 FT	310.00	3.00	0	1.	100.	4.50
SWATHER 20 FT	345.00	2.63	0	1.	100.	4.50
1 TON STACKER	155.00	3.24	1.	0	111.	7.22
3 TON STACKER	207.00	5.27	1.	0	111.	7.22
6 TON STACKER	300.00	7.98	1.	0	111.	7.22
RALEP PTO TWINE	184.00	1.72	1.	0	111.	7.22
ROUND BALER	115.00	2.20	0	1.	111.	5.00
ROTARY MOWER	57.00	.69	0	1.	100.	4.50
HAFF (HYD)	115.00	.63	0	1.	100.	4.50
FORAGE HARV. 1 ROW	104.00	2.27	1.	0	111.	7.22

TABLE 6. CONTINUED

ESTIMATED SHELTER SPACE REQUIREMENTS, REPAIR AND MAINTENANCE COST/HR., LABOR REQUIREMENTS BY CATEGORY, AND TOTAL LABOR COST FOR SPECIFIED ITEMS OF MACHINERY (COST OF TRACTOR OPERATOR IS CHARGED TO THE MACHINE BEING OPERATED).

MACHINE	SHELTER SPACE (SQ. FT.)	REPAIR + MAINT. COST/HR	LABOR REQUIREMENTS		MAN HRS AS PCT. MACH. HOURS	LABOR COST/ MACHINE HOUR
			SKILLED AT \$6.50	UNSKILLED AT \$4.50		
FORAGE HARV. 2 ROW	140.00	2.75	1.	0	111.	7.22
FOR HARV 2ROW SP	230.00	12.27	1.	0	111.	7.22
FOR HAR 3ROW SP	300.00	12.69	1.	0	111.	7.22
FORAGE PLOWER LG	30.00	.42	0	1.	100.	4.50
CORN PICKER 2-3R	140.00	3.32	1.	0	111.	7.22
PICKER-SHELLER 2-ROW	140.00	3.46	1.	0	111.	7.22
COMBINE SM GRAIN SML	60.00	.87	1.	0	111.	7.22
COMBINE SM GRAIN MED	79.00	1.05	1.	0	111.	7.22
COMBINE SM GRAIN LGE	90.00	1.27	1.	0	111.	7.22
COMBINE SOYBEANS SML	79.00	1.21	1.	0	111.	7.22
COMBINE SOYBEANS MED	79.00	1.42	1.	0	111.	7.22
COMBINE SOYBEANS LGE	109.00	1.69	1.	0	111.	7.22
COMBINE CORN 2-3R SM	64.00	1.93	1.	0	111.	7.22
COMBINE CORN 3-3R SM	76.00	3.20	1.	0	111.	7.22
COMBINE CORN 4-3R MD	101.00	4.27	1.	0	111.	7.22
COMBINE CORN 4-30 MD	80.00	4.12	1.	0	111.	7.22
COMBINE CORN 6-30 LG	120.00	5.54	1.	0	111.	7.22
COMBINE CORN 8-30 LG	160.00	7.25	1.	0	111.	7.22
POTATO HARVSTR. 2ROW	190.00	5.26	1.	2.	111.	17.20
BEEF LIFTER 3 ROW	65.00	2.84	1.	0	111.	7.22
BEEF LIFTER 4 ROW	95.00	3.46	1.	0	111.	7.22
BEEF LIFTER 6 ROW	140.00	5.16	1.	0	111.	7.22
BEEF TOPPER 3 ROW	65.00	1.73	1.	0	100.	6.50
BEEF TOPPER 4 ROW	95.00	2.23	1.	0	100.	6.50
BEEF TOPPER 6 ROW	140.00	2.50	1.	0	100.	6.50
BEEF WAGON 9TON	175.00	.52	0	1.	100.	4.50
LIGHT TRUCK	190.00	4.02	0	1.	100.	4.50
MEDIUM TRUCK	250.00	6.73	0	1.	100.	4.50
HEAVY TRUCK	300.00	10.62	0	1.	100.	4.50
WAGON	200.00	.24	0	2.	100.	9.00
FORAGE WAGON 14FT	200.00	.53	0	1.	100.	4.50

TABLE 7

ESTIMATED TOTAL COST PER HOUR BY COMPONENTS FOR SPECIFIED ITEMS OF MACHINERY WITH RECOMMENDED TRACTOR SIZE (ALL LABOR INCLUDED IN MACHINE VARIABLE COST).

MACHINE	TRACTOR HP	ANNUAL HOURS USE	MACHINE COSTS			TRACTOR COST/ HOUR	TOTAL COST/ HOUR
			ANNUAL FIXED COST	FIXED COST/ HOUR	VARIABLE COST/ HOUR		
PLOW 2-16	40	120.00	144.07	1.20	4.95	4.80	10.95
PLOW 3-16	60	120.00	328.10	2.73	5.42	6.86	15.01
PLOW 4-16	75	120.00	535.28	4.46	5.95	8.59	19.00
PLOW 5-16	100	120.00	784.92	6.54	6.59	11.68	24.81
PLOW 6-16	120	130.00	872.26	6.71	6.85	13.39	26.95
PLOW 7-16	140	130.00	1100.85	8.47	7.46	14.94	30.87
PLOW 8-16	160	130.00	1286.04	9.89	7.96	16.26	34.11
PLOW 9-18	200	150.00	1924.25	12.83	9.91	22.49	45.23
PLOW 10-18	225	150.00	2062.05	13.75	10.29	24.56	48.60
PLOW 12-18	275	150.00	2310.99	15.41	10.96	29.35	55.72
CHISEL PLOW 15 FT	120	100.00	447.38	4.47	5.53	13.39	23.40
CHISEL PLOW 17 FT	140	100.00	604.80	6.05	5.90	14.94	26.89
CHISEL PLOW 20 FT	160	100.00	929.15	9.29	6.68	16.26	32.23
CHISEL PLOW WING 24	200	100.00	900.08	9.00	6.70	22.49	38.19
CHISEL PLOW WING 29	250	100.00	1121.76	11.22	7.25	27.74	46.20
CHISEL PLOW WING 35	300	100.00	1293.87	12.94	7.68	32.32	52.94
FIELD CULTIVATOR 18	100	120.00	429.01	3.58	5.56	11.68	20.81
FIELD CULTIVATOR 28	160	120.00	900.49	7.50	6.81	16.26	30.57
FIELD CULTIVATOR 37	200	120.00	1113.08	9.28	7.37	22.49	39.14
DISK 10 FT	60	100.00	444.35	4.44	5.61	6.86	16.92
DISK 16 FT	75	100.00	708.97	7.09	6.22	8.59	21.90
DISK 17 FT	75	100.00	888.33	8.88	6.70	8.59	24.18
DISK 20 FT	100	100.00	969.68	9.70	6.84	11.68	28.22
DISK 21 FT	100	100.00	1023.42	10.23	7.00	11.68	28.91
DISK 24 FT	120	100.00	1545.51	15.46	8.31	13.39	37.16
DISK 28 FT	140	100.00	1709.35	17.09	8.72	14.94	40.75

TABLE 7, CONTINUED

ESTIMATED TOTAL COST PER HOUR BY COMPONENTS FOR SPECIFIED ITEMS OF MACHINERY WITH RECOMMENDED TRACTOR SIZE (ALL LABOR INCLUDED IN MACHINE VARIABLE COST).

MACHINE	TRACTOR HP	ANNUAL HOURS USE	MACHINE COSTS				TRACTOR COST/ HOUR	TOTAL COST/ HOUR
			ANNUAL FIXED COST	FIXED COST/ HOUR	VARIABLE COST/ HOUR			
DISK 32 FT	160	100.00	1778.77	17.79	8.89		16.26	42.94
DISK OFFSET 14 FT	140	100.00	793.87	7.94	6.41		14.94	29.29
DISK OFFSET 16 FT	160	100.00	951.29	9.51	6.79		16.26	32.56
DISK OFFSET 18 FT	180	100.00	1040.73	10.41	6.99		18.30	35.69
DISK-WING OFFSET 21	200	100.00	1502.94	15.03	8.19		22.49	45.71
DISK-WING OFFSET 23	225	100.00	1705.42	17.05	8.70		24.56	50.32
LANDPLANE 45-12FT	180	75.00	899.88	12.00	5.61		18.30	35.90
LANDPLANE 54-12FT	200	75.00	1501.66	20.02	6.19		22.49	48.70
LANDPLANE 54-15FT	200	75.00	1597.85	21.30	6.24		22.49	50.03
LANDPLANE 75-14FT	225	75.00	1737.83	23.17	6.32		24.56	54.06
SPRINGTOOTH DRAG 30	60	30.00	441.70	14.72	5.61		6.86	27.19
SPRINGTOOTH DRAG 48	75	35.00	825.91	23.60	6.27		8.59	38.46
FERTILIZER SPDR 40	60	30.00	512.34	17.08	6.84		6.86	30.78
CORN PLANTER 4-38	40	60.00	797.21	13.29	10.82		4.80	28.90
CORN PLANTER 6-38	60	60.00	1188.92	19.82	12.49		6.86	39.16
CORN PLANTER 6-30	60	60.00	1101.74	18.36	12.12		6.86	37.34
CORN PLANTER 8-30	75	60.00	1480.43	24.67	13.74		8.59	47.00
POTATO PLANTER 4 ROW	120	65.00	1753.32	26.97	21.49		13.39	61.86
BEET PLANTER 12ROW	100	60.00	1711.24	28.52	15.34		11.68	55.54
GRAIN DRILL PW 14 FT	40	80.00	1191.22	14.89	12.86		4.80	32.55
GRAIN DRILL PW 16 FT	60	80.00	1408.97	17.61	13.90		6.86	38.37
GRAIN DRILL PW 20 FT	75	80.00	1858.74	23.23	16.05		8.59	47.88
GRAIN DRILL PW 24 FT	75	80.00	2071.32	25.89	17.04		8.59	51.52
GRAIN DRILL PW 28 FT	100	80.00	2414.26	30.18	18.66		11.68	60.52
CULTIVATOR 4-38	40	100.00	311.51	3.12	5.39		4.80	13.31
CULTIVATOR 6-38	60	100.00	408.60	4.09	5.60		6.86	16.55

TABLE 7, CONTINUED

ESTIMATED TOTAL COST PER HOUR BY COMPONENTS FOR SPECIFIED ITEMS OF MACHINERY WITH RECOMMENDED TRACTOR SIZE (ALL LABOR INCLUDED IN MACHINE VARIABLE COST).

MACHINE	TRACTOR HP	ANNUAL HOURS USE	MACHINE COSTS			TRACTOR COST/ HOUR	TOTAL COST/ HOUR
			ANNUAL FIXED COST	FIXED COST/ HOUR	VARIABLE COST/ HOUR		
CULTIVATOR 6-30	60	100.00	339.60	3.40	5.45	6.86	15.71
CULTIVATOR 8-30	75	100.00	443.92	4.44	5.68	8.59	18.71
ROTARY HOE 16	40	40.00	358.18	8.95	5.10	4.80	18.86
POTATO CULT. 4 ROW	75	130.00	370.80	2.85	5.66	8.59	17.11
BEET CULT. 12 ROW	100	60.00	714.78	11.91	6.12	11.68	29.71
BEET THINNER 6 ROW	100	100.00	1670.75	16.71	10.84	11.68	39.23
BEET THINNER 12 ROW	120	100.00	3160.38	31.60	14.59	13.39	59.59
SPRAYER 30FT	40	80.00	330.07	4.13	9.50	4.80	18.43
SPRAYER 50FT	60	100.00	567.85	5.68	10.82	6.86	23.36
SPRAYER HI PRES 50FT	60	100.00	1512.25	15.12	15.90	6.86	37.88
ANHYDROUS APPLICATOR	120	40.00	565.61	14.14	8.30	13.39	35.83
SHREDDER 12FT	60	100.00	567.70	5.68	5.35	6.86	17.89
SWATHER-COND. 12FT	---	80.00	1651.29	20.64	8.97	0	29.61
SWATHER-COND. 15FT	---	80.00	1685.35	21.07	9.00	0	30.06
SWATHER 12 FT	---	80.00	1576.09	19.70	8.84	0	28.54
SWATHER 15 FT	---	80.00	1613.04	20.16	8.87	0	29.03
SWATHER 18 FT	---	80.00	1807.43	22.59	9.18	0	31.78
SWATHER 20 FT	---	80.00	1610.72	20.13	8.82	0	28.95
1 TON STACKER	60	200.00	1221.17	6.11	10.46	6.86	23.42
3 TON STACKER	75	220.00	1899.26	8.63	12.48	8.59	29.71
6 TON STACKER	100	280.00	2616.92	9.35	15.20	11.68	36.22
BALER PTO TWINE	40	200.00	911.12	4.56	8.94	4.80	18.29
ROUND BALER	60	200.00	1124.08	5.62	7.20	6.86	19.68
ROTARY MOWER	40	100.00	224.18	2.24	5.19	4.80	12.23
RAKE (HYD)	40	200.00	285.26	1.43	5.13	4.80	11.35
FORAGE HARV. 1 ROW	60	100.00	1117.56	11.18	9.49	6.86	27.53

TABLE 1. CONTINUED

ESTIMATED TOTAL COST PER HOUR BY COMPONENTS FOR SPECIFIED ITEMS OF MACHINERY WITH RECOMMENDED TRACTOR SIZE (ALL LABOR INCLUDED IN MACHINE VARIABLE COST).

MACHINE	TRACTOR HP	ANNUAL HOURS USE	MACHINE COSTS			TRACTOR COST/ HOUR	TOTAL COST/ HOUR
			ANNUAL FIXED COST	FIXED COST/ HOUR	VARIABLE COST/ HOUR		
FORAGE HARV. 2 ROW	100	100.00	1357.95	13.58	9.97	11.68	35.23
FOR HARV 2ROW SP	---	150.00	6647.66	44.32	23.63	0	67.95
FOR HAR 3ROW SP	---	150.00	6899.27	46.00	24.68	0	70.67
FORAGE BLOWER LG	60	50.00	274.56	5.49	4.92	6.86	17.27
CORN PICKER 2-38	40	150.00	1391.21	9.27	10.54	4.80	24.61
PICKER-SHELLER 2-ROW	60	150.00	1449.06	9.66	10.68	6.86	27.20
COMBINE SM GRAIN SML	SML	200.00	436.32	2.18	8.09	32.31	42.57
COMBINE SM GRAIN MED	MED	200.00	527.59	2.64	8.27	40.06	50.97
COMBINE SM GRAIN LGE	LRG	200.00	634.23	3.17	8.48	47.02	58.68
COMBINE SOYBEANS SML	SML	200.00	605.69	3.03	8.43	32.31	43.76
COMBINE SOYBEANS MED	MED	200.00	705.48	3.53	8.64	40.06	52.23
COMBINE SOYBEANS LGE	LRG	200.00	836.86	4.18	8.89	47.02	60.10
COMBINE CORN 2-38 SM	SML	200.00	577.93	2.89	9.15	32.31	44.34
COMBINE CORN 3-38 SM	SML	200.00	947.79	4.74	10.42	32.31	47.46
COMBINE CORN 4-38 MD	MED	200.00	1264.09	6.32	11.48	40.06	57.87
COMBINE CORN 4-30 MD	MED	200.00	1215.22	6.08	11.34	40.06	57.48
COMBINE CORN 6-30 LG	LRG	200.00	1652.17	8.26	12.81	47.02	68.09
COMBINE CORN 8-30 LG	LRG	200.00	2144.08	10.72	14.47	47.02	72.21
POTATO HRVSTR. 2ROW	120	120.00	3241.15	27.01	22.46	13.39	62.86
BEET LIFTER 3 ROW	100	80.00	2044.75	25.56	10.06	11.68	47.30
BEET LIFTER 4 ROW	100	80.00	2494.31	31.18	10.68	11.68	53.53
BEET LIFTER 6 ROW	120	80.00	3718.23	46.48	12.37	13.39	72.24
BEET TOPPER 3 ROW	60	80.00	921.02	11.51	8.23	6.86	26.60
BEET TOPPER 4 ROW	75	80.00	1194.14	14.93	8.73	8.59	32.25
BEET TOPPER 6 ROW	100	80.00	1392.66	17.41	9.09	11.68	38.17
BEET WAGON 8TON	75	80.00	831.49	10.39	5.02	8.59	24.00
LIGHT TRUCK	---	270.00	1346.56	4.99	10.76	0	15.75
MEDIUM TRUCK	---	270.00	2237.41	8.29	14.60	0	22.88
HEAVY TRUCK	---	270.00	3497.69	12.95	20.73	0	33.68
WAGON	40	250.00	343.68	1.37	9.29	4.80	15.47
FORAGE WAGON 14FT	40	130.00	724.04	5.57	5.03	4.80	15.40

TABLE 8

ESTIMATED TOTAL COST PER ACRE BY COMPONENTS FOR SPECIFIED ITEMS OF MACHINERY WITH RECOMMENDED TRACTOR SIZE (ALL LABOR INCLUDED IN MACHINE VARIABLE COST).

MACHINE	TRACTOR HP	ANNUAL ACRES USE	MACHINE COSTS			TRACTOR COST/ ACRE	TOTAL COST/ ACRE
			ANNUAL FIXED COST	FIXED COST/ ACRE	VARIABLE COST/ ACRE		
PLOW 2-16	40	139.29	144.07	1.03	4.26	4.14	9.43
PLOW 3-16	60	209.45	328.10	1.57	3.10	3.93	8.60
PLOW 4-16	75	279.10	535.28	1.92	2.56	3.69	8.17
PLOW 5-16	100	348.74	784.92	2.25	2.27	4.02	8.54
PLOW 6-16	120	453.82	872.26	1.92	1.96	3.84	7.72
PLOW 7-16	140	529.27	1100.85	2.08	1.83	3.67	7.58
PLOW 8-16	160	604.71	1286.04	2.13	1.71	3.49	7.33
PLOW 9-18	200	883.64	1924.25	2.18	1.68	3.82	7.68
PLOW 10-18	225	981.82	2062.05	2.10	1.57	3.75	7.43
PLOW 12-18	275	1178.18	2310.99	1.96	1.40	3.74	7.09
CHISEL PLOW 15 FT	120	654.55	447.38	.68	.84	2.05	3.57
CHISEL PLOW 17 FT	140	741.82	604.80	.82	.80	2.01	3.62
CHISFL PLOW 20 FT	160	872.73	929.15	1.06	.77	1.86	3.69
CHISEL PLOW WING 24	200	1047.27	900.08	.86	.64	2.15	3.65
CHISEL PLOW WING 29	250	1265.45	1121.76	.89	.57	2.19	3.65
CHISEL PLOW WING 35	300	1527.27	1293.87	.85	.50	2.12	3.47
FIELD CULTIVATOR 18	100	1047.27	429.01	.41	.64	1.34	2.38
FIELD CULTIVATOR 28	160	1629.09	900.49	.55	.50	1.20	2.25
FIELD CULTIVATOR 37	200	2152.73	1113.08	.52	.41	1.25	2.18
DISK 10 FT	60	484.85	444.35	.92	1.16	1.42	3.49
DISK 16 FT	75	775.76	708.97	.91	.80	1.11	2.82
DISK 17 FT	75	824.24	888.33	1.08	.81	1.04	2.93
DISK 20 FT	100	969.70	969.68	1.00	.71	1.20	2.91
DISK 21 FT	100	1018.18	1023.42	1.01	.69	1.15	2.84
DISK 24 FT	120	1163.64	1545.51	1.33	.71	1.15	3.19
DISK 28 FT	140	1357.58	1709.35	1.26	.64	1.10	3.00

TABLE 8, CONTINUED

ESTIMATED TOTAL COST PER ACRE BY COMPONENTS FOR SPECIFIED ITEMS OF MACHINERY WITH RECOMMENDED TRACTOR SIZE (ALL LABOR INCLUDED IN MACHINE VARIABLE COST).

MACHINE	TRACTOR HP	ANNUAL ACRES USF	MACHINE COSTS			TRACTOR COST/ ACRE	TOTAL COST/ ACRE
			ANNUAL FIXED COST	FIXED COST/ ACRE	VARIABLE COST/ ACRE		
DISK 32 FT	160	1551.52	1778.77	1.15	.57	1.05	2.77
DISK OFFSET 14 FT	140	610.91	793.87	1.30	1.05	2.45	4.80
DISK OFFSET 16 FT	160	698.18	951.29	1.36	.97	2.33	4.66
DISK OFFSET 18 FT	180	785.45	1040.73	1.33	.89	2.33	4.54
DISK-WING OFFSET 21	200	916.36	1502.94	1.64	.89	2.45	4.99
DISK-WING OFFSET 23	225	1003.64	1705.42	1.70	.87	2.45	5.01
LANDPLANE 45-12FT	180	480.00	899.88	1.87	.88	2.86	5.61
LANDPLANE 54-12FT	200	480.00	1501.66	3.13	.97	3.51	7.61
LANDPLANE 54-15FT	200	600.00	1597.85	2.66	.78	2.81	6.25
LANDPLANE 75-14FT	225	560.00	1737.83	3.10	.85	3.29	7.24
SPRINGTOOTH DRAG 30	60	480.00	441.70	.92	.35	.43	1.70
SPRINGTOOTH DRAG 48	75	1058.91	825.91	.78	.21	.28	1.27
FERTILIZER SPRDR 40	60	1163.64	512.34	.44	.18	.18	.79
CORN PLANTER 4-38	40	290.03	797.21	2.75	2.24	.99	5.98
CORN PLANTER 6-38	60	435.27	1188.92	2.73	1.72	.95	5.40
CORN PLANTER 6-30	60	343.64	1101.74	3.21	2.12	1.20	6.52
CORN PLANTER 8-30	75	458.18	1480.43	3.23	1.80	1.13	6.16
POTATO PLANTER 4 ROW	120	248.97	1753.32	7.04	5.61	3.50	16.15
BEET PLANTER 12ROW	100	280.00	1711.24	6.11	3.29	2.50	11.90
GRAIN DRILL PW 14 FT	40	445.96	1191.22	2.67	2.31	.86	5.84
GRAIN DRILL PW 16 FT	60	509.67	1408.97	2.76	2.18	1.08	6.02
GRAIN DRILL PW 20 FT	75	637.09	1858.74	2.92	2.02	1.08	6.01
GRAIN DRILL PW 24 FT	75	764.51	2071.32	2.71	1.78	.90	5.39
GRAIN DRILL PW 28 FT	100	891.93	2414.26	2.71	1.67	1.05	5.43
CULTIVATOR 4-38	40	491.05	311.51	.63	1.10	.98	2.71
CULTIVATOR 6-38	60	736.97	408.60	.55	.76	.93	2.25

TABLE 8, CONTINUED

ESTIMATED TOTAL COST PER ACRE BY COMPONENTS FOR SPECIFIED ITEMS OF MACHINERY WITH RECOMMENDED TRACTOR SIZE (ALL LABOR INCLUDED IN MACHINE VARIABLE COST).

MACHINE	TRACTOR HP	ANNUAL ACRES USE	MACHINE COSTS			TRACTOR COST/ ACRE	TOTAL COST/ ACRE
			ANNUAL FIXED COST	FIXED COST/ ACRE	VARIABLE COST/ ACRE		
CULTIVATOR 6-30	60	581.82	339.60	.58	.94	1.18	2.70
CULTIVATOR 8-30	75	775.76	443.92	.57	.73	1.11	2.41
ROTARY HOE 16	40	434.42	358.18	.82	.47	.44	1.74
POTATO CULT. 4 ROW	75	796.70	370.80	.47	.92	1.40	2.79
BEET CULT. 12 ROW	100	360.00	714.78	1.99	1.02	1.95	4.95
BEET THINNER 6 ROW	100	210.00	1670.75	7.96	5.16	5.56	18.68
BEET THINNER 12 ROW	120	420.00	3150.38	7.52	3.47	3.19	14.19
SPRAYER 30FT	40	1134.55	330.07	.29	.67	.34	1.30
SPRAYER 50FT	60	2363.64	567.85	.24	.46	.29	.99
SPRAYER HI PRES 50FT	60	2363.64	1512.25	.64	.67	.29	1.60
ANHYDROUS APPLICATOR	120	356.36	565.61	1.59	.93	1.50	4.02
SHREDDER 12FT	60	436.36	567.70	1.30	1.23	1.57	4.10
SWATHER-COND. 12FT	---	436.36	1651.29	3.78	1.64	0	5.43
SWATHER-COND. 15FT	---	545.45	1685.35	3.09	1.32	0	4.41
SWATHER 12 FT	---	465.45	1576.09	3.39	1.52	0	4.90
SWATHER 15 FT	---	581.82	1613.04	2.77	1.22	0	3.99
SWATHER 18 FT	---	698.18	1807.43	2.59	1.05	0	3.64
SWATHER 20 FT	---	775.76	1610.72	2.08	.91	0	2.99
1 TON STACKER	60	829.09	1221.17	1.47	2.52	1.66	5.65
3 TON STACKER	75	1064.00	1899.26	1.79	2.58	1.78	6.14
6 TON STACKER	100	1547.64	2616.92	1.69	2.75	2.11	6.55
BALER PTO TWINE	40	756.36	911.12	1.20	2.36	1.27	4.84
ROUND BALER	60	927.27	1124.08	1.21	1.55	1.48	4.24
ROTARY MOWER	40	272.73	224.18	.82	1.90	1.76	4.49
RAKE (HYD)	40	698.18	285.26	.41	1.47	1.38	3.25
FORAGE HARV. 1 ROW	60	94.55	1117.56	11.82	10.04	7.26	29.11

TABLE A-CONTINUED

ESTIMATED TOTAL COST PER ACRE BY COMPONENTS FOR SPECIFIED ITEMS OF MACHINERY
WITH RECOMMENDED TRACTOR SIZE (ALL LABOR INCLUDED IN MACHINE VARIABLE COST).

MACHINE	TRACTOR HP	MACHINE COSTS				TRACTOR COST/ ACRE	TOTAL COST/ ACRE
		ANNUAL ACRES USED	ANNUAL FIXED COST	FIXED COST/ ACRE	VARIABLE COST/ ACRE		
FORAGE HARV. 2 ROW	100	165.45	1357.95	9.21	6.03	7.06	21.29
FOR HARV 2ROW SP	---	305.45	6647.66	21.76	11.61	0	33.37
FOR HAR 3ROW SP	---	458.18	6899.27	15.06	8.08	0	23.14
FORAGE HLOWER LG	60		274.56				
CORN PICKER 2-38	40	223.36	1391.21	6.23	7.08	3.22	16.53
PICKER-SHELLER 2-ROW	60	223.36	1449.06	6.49	7.17	4.61	18.27
COMBINE SM GRAIN SML SML		819.39	436.32	.53	1.97	7.89	10.39
COMBINE SM GRAIN MED MED		945.45	527.59	.56	1.75	8.47	10.78
COMBINE SM GRAIN LGF LRG		1260.61	634.23	.50	1.35	7.46	9.31
COMBINE SOYBEANS SML SML		716.97	605.69	.84	2.35	9.01	12.21
COMBINE SOYBEANS MED MED		827.27	705.48	.85	2.09	9.69	12.63
COMBINE SOYBEANS LGE LRG		992.73	836.86	.84	1.79	9.47	12.11
COMBINE CORN 2-38 SM SML		297.82	577.93	1.94	6.14	21.70	29.78
COMBINE CORN 3-38 SM SML		449.09	947.79	2.11	4.64	14.39	21.14
COMBINE CORN 4-38 MD MED		598.47	1264.09	2.11	3.84	13.39	19.34
COMBINE CORN 4-30 MD MED		520.00	1215.22	2.34	4.36	15.41	22.11
COMBINE CORN 6-30 LG LRG		780.00	1652.17	2.12	3.28	12.06	17.46
COMBINE CORN 8-30 LG LRG		945.45	2144.08	2.27	3.06	9.95	15.28
POTATO HARVSTR. 2ROW	120	298.76	3241.15	10.85	9.02	5.38	25.25
BEET LIFTER 3 ROW	100	208.00	2044.75	9.83	3.87	4.49	18.19
BEET LIFTER 4 ROW	100	277.21	2494.31	9.00	3.00	3.37	15.45
BEET LIFTER 6 ROW	120	416.00	3718.23	8.94	2.38	2.58	13.89
BEET TOPPER 3 ROW	60	256.00	921.02	3.60	2.57	2.14	8.31
BEET TOPPER 4 ROW	75	341.18	1194.14	3.50	2.05	2.02	7.56
BEET TOPPER 6 ROW	100	512.00	1392.66	2.72	1.42	1.82	5.96
BEET WAGON 8TON	75	277.21	831.49	3.00	1.45	2.48	6.93
LIGHT TRUCK	---	409.09	1346.56	3.29	7.10	0	10.40
MEDIUM TRUCK	---	409.09	2237.41	5.47	9.63	0	15.10
HEAVY TRUCK	---	409.09	3497.69	8.55	13.68	0	22.23
WAGON	40	945.45	343.68	.36	2.46	1.27	4.09
FORAGE WAGON 14FT	40	215.09	724.04	3.37	3.04	2.90	9.31

TABLE 9

ESTIMATED FUEL USE PER ACRE FOR SPECIFIED ITEMS OF MACHINERY

MACHINE	TRACTOR HP	TRACTOR FUEL CONS.	MACHINE FUEL CONS.	TOTAL FUEL CONS.
PLOW 2-16	40	2.07	0	2.07
PLOW 3-16	60	2.06	0	2.06
PLOW 4-16	75	1.93	0	1.93
PLOW 5-16	100	2.06	0	2.06
PLOW 6-16	120	2.06	0	2.06
PLOW 7-16	140	2.06	0	2.06
PLOW 8-16	160	2.06	0	2.06
PLOW 9-18	200	2.04	0	2.04
PLOW 10-18	225	2.06	0	2.06
PLOW 12-18	275	2.10	0	2.10
CHISEL PLOW 15 FT	120	1.10	0	1.10
CHISEL PLOW 17 FT	140	1.13	0	1.13
CHISEL PLOW 20 FT	160	1.10	0	1.10
CHISEL PLOW WING 24	200	1.15	0	1.15
CHISEL PLOW WING 29	250	1.19	0	1.19
CHISEL PLOW WING 35	300	1.18	0	1.18
FIELD CULTIVATOR 18	100	.69	0	.69
FIELD CULTIVATOR 28	160	.71	0	.71
FIELD CULTIVATOR 37	200	.67	0	.67
DISK 10 FT	60	.74	0	.74
DISK 16 FT	75	.58	0	.58
DISK 17 FT	75	.55	0	.55
DISK 20 FT	100	.62	0	.62
DISK 21 FT	100	.59	0	.59
DISK 24 FT	120	.62	0	.62
DISK 28 FT	140	.62	0	.62

TABLE 9 •CONTINUED

ESTIMATED FUEL USE PER ACRE FOR SPECIFIED ITEMS OF MACHINERY

MACHINE	TRACTOR HP	TRACTOR FUEL CONS.	MACHINE FUEL CONS.	TOTAL FUEL CONS.
DISK 32 FT	160	.62	0	.62
DISK OFFSET 14 FT	140	1.37	0	1.37
DISK OFFSET 16 FT	160	1.38	0	1.38
DISK OFFSET 18 FT	180	1.38	0	1.38
DISK-WING OFFSET 21	200	1.31	0	1.31
DISK-WING OFFSET 23	225	1.35	0	1.35
LANDPLANE 45-12FT	180	1.69	0	1.69
LANDPLANE 54-12FT	200	1.88	0	1.88
LANDPLANE 54-15FT	200	1.50	0	1.50
LANDPLANE 75-14FT	225	1.81	0	1.81
SPRINGTOOTH DRAG 30	60	.22	0	.22
SPRINGTOOTH DRAG 48	75	.15	0	.15
FERTILIZER SPRDR 40	60	.09	0	.09
CORN PLANTER 4-38	40	.50	0	.50
CORN PLANTER 6-38	60	.50	0	.50
CORN PLANTER 6-30	60	.63	0	.63
CORN PLANTER 8-30	75	.59	0	.59
POTATO PLANTER 4 ROW	120	1.88	0	1.88
BEET PLANTER 12ROW	100	1.29	0	1.29
GRAIN DRILL PW 14 FT	40	.43	0	.43
GRAIN DRILL PW 16 FT	60	.57	0	.57
GRAIN DRILL PW 20 FT	75	.57	0	.57
GRAIN DRILL PW 24 FT	75	.47	0	.47
GRAIN DRILL PW 28 FT	100	.54	0	.54
CULTIVATOR 4-38	40	.49	0	.49
CULTIVATOR 6-38	60	.49	0	.49

TABLE 9 ,CONTINUED

ESTIMATED FUEL USE PER ACRE FOR SPECIFIED ITEMS OF MACHINERY

MACHINE	TRACTOR HP	TRACTOR FUEL CONS.	MACHINE FUEL CONS.	TOTAL FUEL CONS
CULTIVATOR 6-30	60	.62	0	.62
CULTIVATOR 8-30	75	.58	0	.58
ROTARY HOE 16	40	.22	0	.22
POTATO CULT. 4 ROW	75	.73	0	.73
BEET CULT. 12 ROW	100	1.00	0	1.00
BEET THINNER 6 ROW	100	2.86	0	2.86
BEET THINNER 12 ROW	120	1.71	0	1.71
SPRAYER 30FT	40	.17	0	.17
SPRAYER 50FT	60	.15	0	.15
SPRAYER HI PRES 50FT	60	.15	0	.15
ANHYDROUS APPLICATOR	120	.81	0	.81
SHREDDER 12FT	60	.83	0	.83
SWATHER-COND. 12FT	---	0	.55	.55
SWATHER-COND. 15FT	---	0	.44	.44
SWATHER 12 FT	---	0	.52	.52
SWATHER 15 FT	---	0	.41	.41
SWATHER 18 FT	---	0	.34	.34
SWATHER 20 FT	---	0	.31	.31
1 TON STACKER	60	.87	0	.87
3 TON STACKER	75	.93	0	.93
6 TON STACKER	100	1.09	0	1.09
BALER PTO TWINE	40	.63	0	.63
ROUND BALER	60	.78	0	.78
ROTARY MOWER	40	.88	0	.88
RAKE (HYD)	40	.69	0	.69
FORAGE HARV. 1 ROW	60	3.81	0	3.81

TABLE 9 .CONTINUED

ESTIMATED FUEL USE PER ACRE FOR SPECIFIED ITEMS OF MACHINERY

MACHINE	TRACTOR HP	TRACTOR FUEL CONS.	MACHINE FUEL CONS.	TOTAL FUEL CONS.
FORAGE HARV. 2 ROW	100	3.63	0	3.63
FOR HARV 2ROW SP	---	0	3.63	3.63
FOR HAR 3ROW SP	---	0	2.78	2.78
FORAGE BLOWER LG	60			
CORN PICKER 2-38	40	1.61	0	1.61
PICKER-SHELLER 2-ROW	60	2.42	0	2.42
COMBINE SM GRAIN SML	SML	1.46	0	1.46
COMBINE SM GRAIN MED	MED	1.40	0	1.40
COMBINE SM GRAIN LGE	LRG	1.22	0	1.22
COMBINE SOYBEANS SML	SML	1.67	0	1.67
COMBINE SOYBEANS MED	MED	1.60	0	1.60
COMBINE SOYBEANS LGE	LRG	1.55	0	1.55
COMBINE CORN 2-38 SM	SML	4.03	0	4.03
COMBINE CORN 3-38 SM	SML	2.67	0	2.67
COMBINE CORN 4-38 MD	MED	2.21	0	2.21
COMBINE CORN 4-30 MD	MED	2.54	0	2.54
COMBINE CORN 6-30 LG	LRG	1.97	0	1.97
COMBINE CORN 8-30 LG	LRG	1.62	0	1.62
POTATO HRVSTR. 2ROW	120	2.89	0	2.89
BEET LIFTER 3 ROW	100	2.31	0	2.31
BEET LIFTER 4 ROW	100	1.73	0	1.73
BEET LIFTER 6 ROW	120	1.38	0	1.38
BEET TOPPER 3 ROW	60	1.13	0	1.13
BEET TOPPER 4 ROW	75	1.06	0	1.06
BEET TOPPER 6 ROW	100	.94	0	.94
BEET WAGON 8TON	75	1.30	0	1.30
LIGHT TRUCK	---	0	2.64	2.64
MEDIUM TRUCK	---	0	3.96	3.96
HEAVY TRUCK	---	0	6.60	6.60
WAGON	40	.63	0	.63
FORAGE WAGON 14FT	40	1.45	0	1.45

TABLE 10
SUGGESTED CUSTOM RATES INCLUDING LABOR AND FUEL
COSTS WITH SUGGESTED TRACTOR

MACHINE	HP RANGE OF TRACTOR	ACRES OF USE	CUSTOM RATE/HOUR	CUSTOM RATE/ACRE
PLOW 2-16	40	150.00	13.04	11.23
PLOW 3-16	60	225.00	17.79	10.19
PLOW 4-16	75	300.00	22.43	9.64
PLOW 5-16	100	375.00	29.22	10.05
PLOW 6-16	120	500.00	31.60	9.05
PLOW 7-16	140	575.00	36.24	8.90
PLOW 8-16	160	650.00	40.10	8.62
PLOW 9-18	200	975.00	52.83	8.97
PLOW 10-18	225	1050.00	57.25	8.75
PLOW 12-18	275	1200.00	66.52	8.47
CHISEL PLOW 15 FT	120	700.00	27.73	4.24
CHISEL PLOW 17 FT	140	800.00	31.74	4.28
CHISEL PLOW 20 FT	160	950.00	37.77	4.33
CHISEL PLOW WING 24	200	1100.00	45.31	4.33
CHISEL PLOW WING 29	250	1350.00	54.60	4.31
CHISEL PLOW WING 35	300	1600.00	62.82	4.11
FIELD CULTIVATOR 18	100	1050.00	24.96	2.86
FIELD CULTIVATOR 28	160	1630.00	36.68	2.70
FIELD CULTIVATOR 37	200	2150.00	46.98	2.62
DISK 10 FT	60	485.00	20.30	4.19
DISK 16 FT	75	775.00	26.29	3.39
DISK 17 FT	75	825.00	29.00	3.52
DISK 20 FT	100	970.00	33.86	3.49
DISK 21 FT	100	1020.00	34.67	3.41
DISK 24 FT	120	1170.00	44.49	3.82
DISK 28 FT	140	1360.00	48.87	3.60

TABLE 10, CONTINUED

SUGGESTED CUSTOM RATES INCLUDING LABOR AND FUEL
COSTS WITH SUGGESTED TRACTOR

MACHINE	HP RANGE OF TRACTOR	ACRES OF USE	CUSTOM RATE/HOUR	CUSTOM RATE/ACRE
DISK 32 FT	160	1560.00	51.41	3.31
DISK OFFSET 14 FT	140	610.00	35.17	5.76
DISK OFFSET 16 FT	160	700.00	39.04	5.59
DISK OFFSET 18 FT	180	790.00	42.76	5.44
DISK-WING OFFSET 21	200	920.00	54.78	5.98
DISK-WING OFFSET 23	225	1010.00	60.25	6.00
LANDPLANE 45-12FT	180	480.00	43.08	6.73
LANDPLANE 54-12FT	200	480.00	58.44	9.13
LANDPLANE 54-15FT	200	600.00	60.04	7.50
LANDPLANE 75-14FT	225	560.00	64.87	8.69
SPRINGTOOTH DRAG 30	60	480.00	32.63	2.04
SPRINGTOOTH DRAG 48	75	1060.00	46.12	1.52
FERTILIZER SPRDR 40	60	320.00	90.96	2.35
CORN PLANTER 4-38	40	290.00	34.68	7.18
CORN PLANTER 6-38	60	440.00	46.74	6.44
CORN PLANTER 6-30	60	350.00	44.41	7.75
CORN PLANTER 8-30	75	460.00	56.29	7.37
POTATO PLANTER 4 ROW	120	250.00	74.09	19.34
BEET PLANTER 12ROW	100	280.00	66.65	14.28
GRAIN DRILL PW 14 FT	40	450.00	38.90	6.98
GRAIN DRILL PW 16 FT	60	510.00	46.03	7.23
GRAIN DRILL PW 20 FT	75	640.00	57.33	7.20
GRAIN DRILL PW 24 FT	75	770.00	61.61	6.45
GRAIN DRILL PW 28 FT	100	900.00	72.30	6.48
CULTIVATOR 4-38	40	500.00	15.90	3.24
CULTIVATOR 6-38	60	740.00	19.84	2.69

TABLE 10, CONTINUED

SUGGESTED CUSTOM RATES INCLUDING LABOR AND FUEL
COSTS WITH SUGGESTED TRACTOR

MACHINE	HP RANGE OF TRACTOR	ACRES OF USE	CUSTOM RATE/HOUR	CUSTOM RATE/ACRE
CULTIVATOR 6-30	60	590.00	18.79	3.23
CULTIVATOR 8-30	75	780.00	22.43	2.89
ROTARY HOE 16	40	440.00	22.49	2.07
POTATO CULT. 4 ROW	75	800.00	20.52	3.35
BEET CULT. 12 ROW	100	360.00	35.65	5.94
BEET THINNER 6 ROW	100	210.00	47.07	22.42
BEET THINNER 12 ROW	120	420.00	71.51	17.03
SPRAYER 30FT	40	1140.00	22.09	1.56
SPRAYER 50FT	60	2370.00	28.02	1.19
SPRAYER HI PRES 50FT	60	2370.00	45.41	1.92
ANHYDROUS APPLICATOR	120	400.00	41.15	4.62
SHREDDER 12FT	60	440.00	21.41	4.91
SWATHER-COND. 12FT	---	440.00	35.33	6.48
SWATHER-COND. 15FT	---	550.00	35.87	5.26
SWATHER 12 FT	---	470.00	34.02	5.85
SWATHER 15 FT	---	590.00	34.50	4.74
SWATHER 18 FT	---	700.00	38.06	4.36
SWATHER 20 FT	---	780.00	34.61	3.57
1 TON STACKER	60	910.00	27.46	6.62
3 TON STACKER	75	1170.00	34.71	7.18
6 TON STACKER	100	1700.00	42.46	7.68
BALER PTO TWINE	40	970.00	20.75	5.49
ROUND BALER	60	1020.00	23.00	4.96
ROTARY MOWER	40	280.00	14.61	5.36
RAKE (HYD)	40	350.00	15.33	4.39
FORAGE HARV. 1 ROW	60	100.00	32.30	34.16

TABLE 10, CONTINUED
SUGGESTED CUSTOM RATES INCLUDING LABOR AND FUEL
COSTS WITH SUGGESTED TRACTOR

MACHINE	HP RANGE OF TRACTOR	ACRES OF USE	CUSTOM RATE/HOUR	CUSTOM RATE/ACRE
FORAGE HARV. 2 ROW	100	180.00	40.96	24.75
FOR HARV 2ROW SP	---	330.00	77.58	38.10
FOR HAR 3ROW SP	---	500.00	80.19	26.25
FORAGE BLOWER LG	60	300.00	15.24	
CORN PICKER 2-38	40	200.00	30.83	20.71
PICKER-SHELLER 2-ROW	60	200.00	33.99	22.83
COMBINE SM GRAIN SML	SML	1100.00	50.42	12.31
COMBINE SM GRAIN MED	MED	1240.00	60.41	12.78
COMBINE SM GRAIN LGE	LRG	1380.00	70.08	11.12
COMBINE SOYBEANS SML	SML	970.00	51.57	14.39
COMBINE SOYBEANS MED	MED	1090.00	61.65	14.91
COMBINE SOYBEANS LGE	LRG	1210.00	71.22	14.35
COMBINE CORN 2-38 SM	SML	410.00	52.26	35.10
COMBINE CORN 3-38 SM	SML	490.00	56.48	25.15
COMBINE CORN 4-38 MD	MED	650.00	68.84	23.00
COMBINE CORN 4-30 MD	MED	570.00	68.33	26.28
COMBINE CORN 6-30 LG	LRG	850.00	80.89	20.74
COMBINE CORN 8-30 LG	LRG	1030.00	85.60	18.11
POTATO HRVSTR. 2ROW	120	300.00	75.30	30.25
BEET LIFTER 3 ROW	100	210.00	56.46	21.72
BEET LIFTER 4 ROW	100	280.00	63.87	18.43
BEET LIFTER 6 ROW	120	420.00	86.16	16.57
BEET TOPPER 3 ROW	60	260.00	31.71	9.91
BEET TOPPER 4 ROW	75	350.00	38.25	8.97
BEET TOPPER 6 ROW	100	520.00	45.49	7.11
BEET WAGON 8TON	75	280.00	28.68	
LIGHT TRUCK	---	450.00	18.36	
MEDIUM TRUCK	---	450.00	26.56	
HEAVY TRUCK	---	450.00	39.00	
WAGON	40	900.00	18.64	
FORAGE WAGON 14FT	40	180.00	19.79	

TABLE 11

ESTIMATED OPERATING COSTS, OWNERSHIP COSTS AND SUGGESTED CUSTOM RATES
ON A PER HOUR AND A PER ACRE BASIS

MACHINE	TRACTOR HP	CASH		TOTAL COSTS		SUGGESTED CUSTOM RATES	
		OPERATING PER HOUR	COSTS PER ACRE	PER HOUR	PER ACRE	PER HOUR	PER ACRE
PLOW 2-16	40	2.32	2.00	10.95	9.43	13.04	11.23
PLOW 3-16	60	3.72	2.13	15.01	8.60	17.79	10.19
PLOW 4-16	75	4.98	2.14	19.00	8.17	22.43	9.64
PLOW 5-16	100	7.05	2.43	24.81	8.54	29.22	10.05
PLOW 6-16	120	8.20	2.35	26.95	7.72	31.60	9.05
PLOW 7-16	140	9.65	2.37	30.87	7.58	36.24	8.90
PLOW 8-16	160	11.19	2.41	34.11	7.33	40.10	8.62
PLOW 9-18	200	14.50	2.46	45.23	7.68	52.83	8.97
PLOW 10-18	225	15.92	2.43	48.60	7.43	57.25	8.75
PLOW 12-18	275	18.75	2.39	55.72	7.09	66.52	8.47
CHISEL PLOW 15 FT	120	6.88	1.05	23.40	3.57	27.73	4.24
CHISEL PLOW 17 FT	140	8.09	1.09	26.89	3.62	31.74	4.28
CHISEL PLOW 20 FT	160	9.92	1.14	32.23	3.69	37.77	4.33
CHISEL PLOW WING 24	200	11.29	1.08	38.19	3.65	45.31	4.33
CHISEL PLOW WING 29	250	14.08	1.11	46.20	3.65	54.60	4.31
CHISEL PLOW WING 35	300	16.65	1.09	52.94	3.47	62.82	4.11
FIELD CULTIVATOR 18	100	6.02	.69	20.81	2.38	24.96	2.86
FIELD CULTIVATOR 28	160	10.05	.74	30.57	2.25	36.68	2.70
FIELD CULTIVATOR 37	200	11.96	.67	39.14	2.18	46.98	2.62
DISK 10 FT	60	3.91	.81	16.92	3.49	20.30	4.19
DISK 16 FT	75	5.25	.68	21.90	2.82	26.29	3.39
DISK 17 FT	75	5.73	.70	24.18	2.93	29.00	3.52
DISK 20 FT	100	7.30	.75	28.22	2.91	33.86	3.49
DISK 21 FT	100	7.46	.73	28.91	2.84	34.67	3.41
DISK 24 FT	120	9.66	.83	37.16	3.19	44.49	3.82
DISK 28 FT	140	10.91	.80	40.75	3.00	48.87	3.60

TABLE 11, CONTINUED

ESTIMATED OPERATING COSTS, OWNERSHIP COSTS AND SUGGESTED CUSTOM RATES
ON A PER HOUR AND A PER ACRE BASIS

MACHINE	TRACTOR HP	CASH OPERATING COSTS		TOTAL COSTS		SUGGESTED CUSTOM RATES	
		PER HOUR	PER ACRE	PER HOUR	PER ACRE	PER HOUR	PER ACRE
DISK 32 FT	160	12.13	.78	42.94	2.77	51.41	3.31
DISK OFFSET 14 FT	140	8.61	1.41	29.29	4.80	35.17	5.76
DISK OFFSET 16 FT	160	10.02	1.44	32.56	4.66	39.04	5.59
DISK OFFSET 18 FT	180	11.21	1.43	35.69	4.54	42.76	5.44
DISK-WING OFFSET 21	200	12.78	1.39	45.71	4.99	54.78	5.98
DISK-WING OFFSET 23	225	14.32	1.43	50.32	5.01	60.25	6.00
LANDPLANE 45-12FT	180	9.56	1.49	35.90	5.61	43.08	6.73
LANDPLANE 54-12FT	200	10.51	1.64	48.70	7.61	58.44	9.13
LANDPLANE 54-15FT	200	10.55	1.32	50.03	6.25	60.04	7.50
LANDPLANE 75-14FT	225	11.68	1.56	54.06	7.24	64.87	8.69
SPRINGTOOTH DRAG 30	60	3.64	.23	27.19	1.70	32.63	2.04
SPRINGTOOTH DRAG 48	75	5.03	.17	38.46	1.27	46.12	1.52
ERTILIZER SPRDR 40	60	3.74	.10	30.78	.79	90.96	2.35
CORN PLANTER 4-38	40	5.24	1.08	28.90	5.98	34.68	7.18
CORN PLANTER 6-38	60	7.84	1.08	39.16	5.40	46.74	6.44
CORN PLANTER 6-30	60	7.47	1.30	37.34	6.52	44.41	7.75
CORN PLANTER 8-30	75	9.81	1.29	47.00	6.16	56.29	7.37
POTATO PLANTER 4 ROW	120	13.79	3.60	61.86	16.15	74.09	19.34
BEET PLANTER 12ROW	100	12.33	2.64	55.54	11.90	66.65	14.28
GRAIN DRILL PW 14 FT	40	7.61	1.37	32.55	5.84	38.90	6.98
GRAIN DRILL PW 16 FT	60	9.57	1.50	38.37	6.02	46.03	7.23
GRAIN DRILL PW 20 FT	75	12.45	1.56	47.88	6.01	57.33	7.20
GRAIN DRILL PW 24 FT	75	13.44	1.41	51.52	5.39	61.61	6.45
GRAIN DRILL PW 28 FT	100	16.50	1.48	60.52	5.43	72.30	6.48
CULTIVATOR 4-38	40	2.68	.55	13.31	2.71	15.90	3.24
CULTIVATOR 6-38	60	3.82	.52	16.55	2.25	19.84	2.69

TABLE 11, CONTINUED

ESTIMATED OPERATING COSTS, OWNERSHIP COSTS AND SUGGESTED CUSTOM RATES
ON A PER HOUR AND A PER ACRE BASIS

MACHINE	TRACTOR HP	CASH OPERATING COSTS		TOTAL COSTS		SUGGESTED CUSTOM RATES	
		PER HOUR	PER ACRE	PER HOUR	PER ACRE	PER HOUR	PER ACRE
CULTIVATOR 6-30	60	3.66	.63	15.71	2.70	18.79	3.23
CULTIVATOR 8-30	75	4.62	.60	18.71	2.41	22.43	2.89
ROTARY HOE 16	40	2.57	.24	18.86	1.74	22.49	2.07
POTATO CULT. 4 ROW	75	4.60	.75	17.11	2.79	20.52	3.35
BEET CULT. 12 ROW	100	6.49	1.08	29.71	4.95	35.65	5.94
BEET THINNER 6 ROW	100	9.13	4.35	39.23	18.68	47.07	22.42
BEET THINNER 12 ROW	120	13.77	3.28	59.59	14.19	71.51	17.03
SPRAYER 30FT	40	3.34	.24	18.43	1.30	22.09	1.56
SPRAYER 50FT	60	5.59	.24	23.36	.99	28.02	1.19
SPRAYER HI PRES 50FT	60	10.66	.45	37.88	1.60	45.41	1.92
ANHYDROUS APPLICATOR	120	8.25	.93	35.83	4.02	41.15	4.62
SHREDDER 12FT	60	3.74	.86	17.89	4.10	21.41	4.91
SWATHER-COND. 12FT	---	4.47	.82	29.61	5.43	35.33	6.48
SWATHER-COND. 15FT	---	4.50	.66	30.06	4.41	35.87	5.26
SWATHER 12 FT	---	4.34	.75	28.54	4.90	34.02	5.85
SWATHER 15 FT	---	4.37	.60	29.03	3.99	34.50	4.74
SWATHER 18 FT	---	4.68	.54	31.78	3.64	38.06	4.36
SWATHER 20 FT	---	4.32	.45	28.95	2.99	34.61	3.57
1 TON STACKER	60	6.13	1.48	23.42	5.65	27.46	6.62
3 TON STACKER	75	8.89	1.84	29.71	6.14	34.71	7.18
6 TON STACKER	100	13.03	2.36	36.22	6.55	42.46	7.68
BALER PTO TWINE	40	3.69	.98	18.29	4.84	20.75	5.49
ROUND BALER	60	5.09	1.10	19.68	4.24	23.00	4.96
ROTARY MOWER	40	2.66	.97	12.23	4.49	14.61	5.36
RAKE (HYD)	40	2.59	.74	11.35	3.25	15.33	4.39
FORAGE HARV. 1 ROW	60	5.16	5.46	27.53	29.11	32.30	34.16

TABLE 11 • CONTINUED

ESTIMATED OPERATING COSTS, OWNERSHIP COSTS AND SUGGESTED CUSTOM RATES
ON A PER HOUR AND A PER ACRE BASIS

MACHINE	TRACTOR HP	CASH OPERATING COSTS		TOTAL COSTS		SUGGESTED CUSTOM RATES	
		PER HOUR	PER ACRE	PER HOUR	PER ACRE	PER HOUR	PER ACRE
FORAGE HARV. 2 ROW	100	7.81	4.72	35.23	21.29	40.96	24.75
FOR HARV 2ROW SP	---	16.42	8.06	67.95	33.37	77.58	38.10
FOR HAR 3ROW SP	---	17.46	5.72	70.67	23.14	80.19	26.25
FORAGE BLOWER LG	60	3.31		17.27		15.24	
CORN PICKER 2-38	40	5.29	3.55	24.61	16.53	30.83	20.71
PICKER-SHELLER 2-ROW	60	6.35	4.27	27.20	18.27	33.99	22.83
COMBINE SM GRAIN SML	SML	16.39	4.00	42.57	10.39	50.42	12.31
COMBINE SM GRAIN MED	MED	20.02	4.23	50.97	10.78	60.41	12.78
COMBINE SM GRAIN LGE	LRG	23.49	3.73	58.68	9.31	70.08	11.12
COMBINE SOYBEANS SML	SML	16.74	4.67	43.76	12.21	51.57	14.39
COMBINE SOYBEANS MED	MED	20.39	4.93	52.23	12.63	61.65	14.91
COMBINE SOYBEANS LGE	LRG	23.90	4.82	60.10	12.11	71.22	14.35
COMBINE CORN 2-38 SM	SML	17.45	11.72	44.34	29.78	52.26	35.10
COMBINE CORN 3-38 SM	SML	18.72	8.34	47.46	21.14	56.48	25.15
COMBINE CORN 4-38 MD	MED	23.23	7.76	57.87	19.34	68.84	23.00
COMBINE CORN 4-30 MD	MED	23.09	8.88	57.48	22.11	68.33	26.28
COMBINE CORN 6-30 LG	LRG	27.82	7.13	68.09	17.46	80.89	20.74
COMBINE CORN 8-30 LG	LRG	29.48	6.24	72.21	15.28	85.60	18.11
POTATO HARVSTR. 2ROW	120	11.20	4.50	62.86	25.25	75.30	30.25
BEET LIFTER 3 ROW	100	7.90	3.04	47.30	18.19	56.46	21.72
BEET LIFTER 4 ROW	100	8.51	2.46	53.53	15.45	63.87	18.43
BEET LIFTER 6 ROW	120	11.10	2.13	72.24	13.89	86.16	16.57
BEET TOPPER 3 ROW	60	4.62	1.44	26.60	8.31	31.71	9.91
BEET TOPPER 4 ROW	75	5.85	1.37	32.25	7.56	38.25	8.97
BEET TOPPER 6 ROW	100	7.64	1.19	38.17	5.96	45.49	7.11
BEET WAGON 8TON	75	4.13		24.00		28.68	
LIGHT TRUCK	---	6.26		15.75		18.36	
MEDIUM TRUCK	---	10.10		22.88		26.56	
HEAVY TRUCK	---	16.23		33.68		39.00	
WAGON	40	2.26		15.47		18.64	
FORAGE WAGON 14FT	40	2.50		15.40		19.79	

